

# Broadband Connectivity:

## The “choke point” to 21<sup>st</sup> century learning in Iowa

STEM: Statewide Broadband Work Group  
Update and Findings

Iowa STEM Summit II

**Governor's** STEM Advisory Council Meeting VI

Tuesday, March 5, 2013

Community Choice Credit Union – **Veteran's Auditorium**

# STEM Broadband Work Group Members

**Josh Byrnes**, State Representative, 14 District

**John Carver**, Howard-Winneshiek Community Schools

**Robert Denson**, President, Des Moines Area Community College

**Dave Duncan**, President, Iowa Telecommunications Association

**Philip Groner**, Iowa Communication Network

**Karl Hehr**, Director of Technology Services, Ames Community Schools

**Galen Howsare**, Iowa Association of School Boards, Chief Financial Officer

**Amy Kuhlers**, Connect Iowa, State Program Manager

**Karen Randall**, Keystone Area Education Association

**Michael Sadler**, CenturyLink, Assistant VP Public Policy & Government Relations

**Jeff Weld**, Executive Director, Governor's STEM Advisory Council

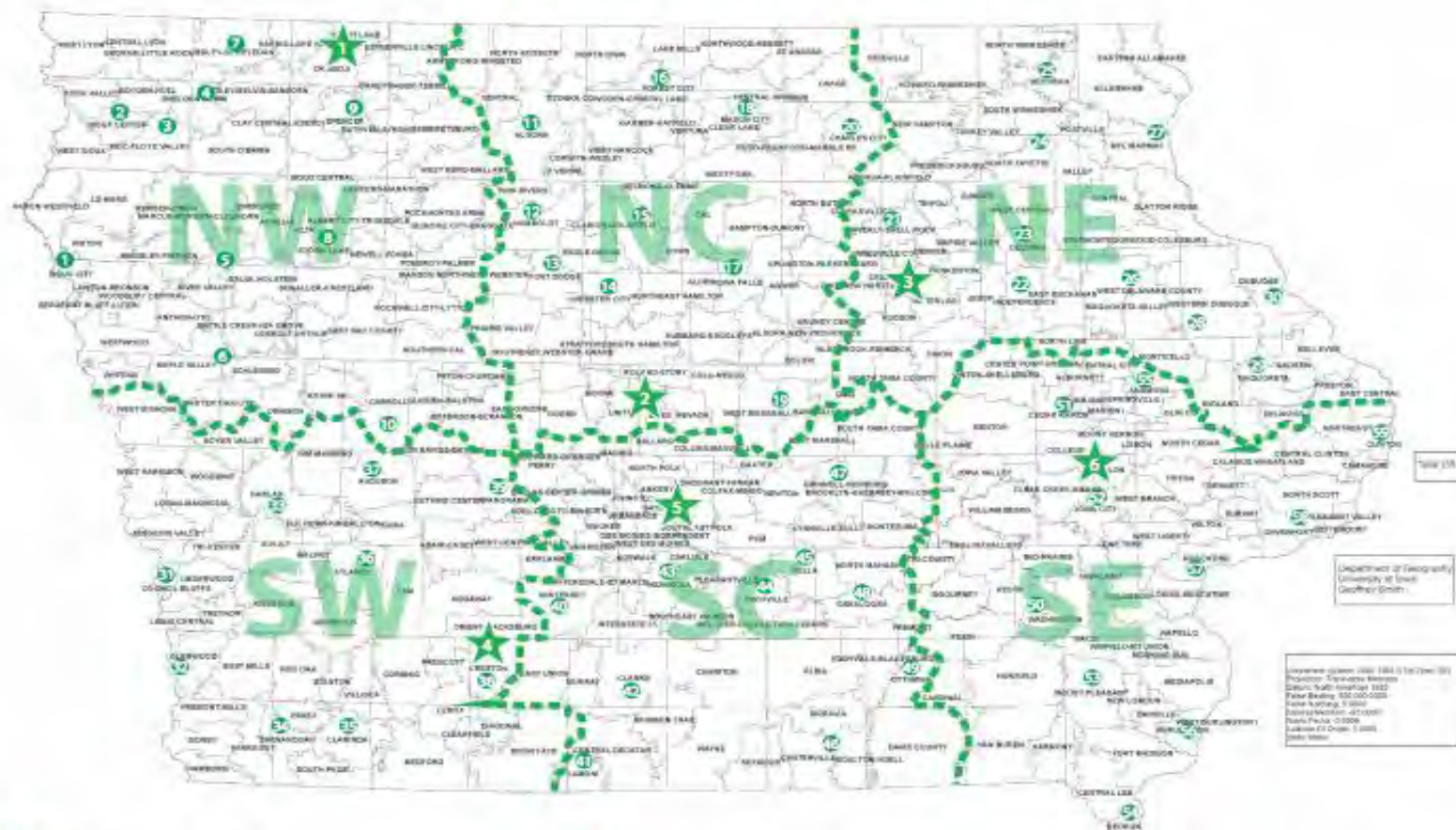
**Larry Siegel**, Iowa School Finance and Information System (ISFIS)

**Robert von Wolffrad**t, Chief Information Officer, State of Iowa

## Current Condition:

- Iowa STEM is “on the move”
- 120+ Iowa school Districts have some form of “1 to 1” initiative in place.
- Reliable, robust and cost-effective broadband access is crucial to **take learning to the next level and move beyond “siloed” classrooms.**
- Without broadband access, students cannot collaboratively create with other students locally, regionally or globally.
- Without broadband, teachers cannot collaborate with colleagues, participate in online professional development or immediately analyzed results from online assessments.

## Regional STEM Hub Centers



### Regional STEM Hubs

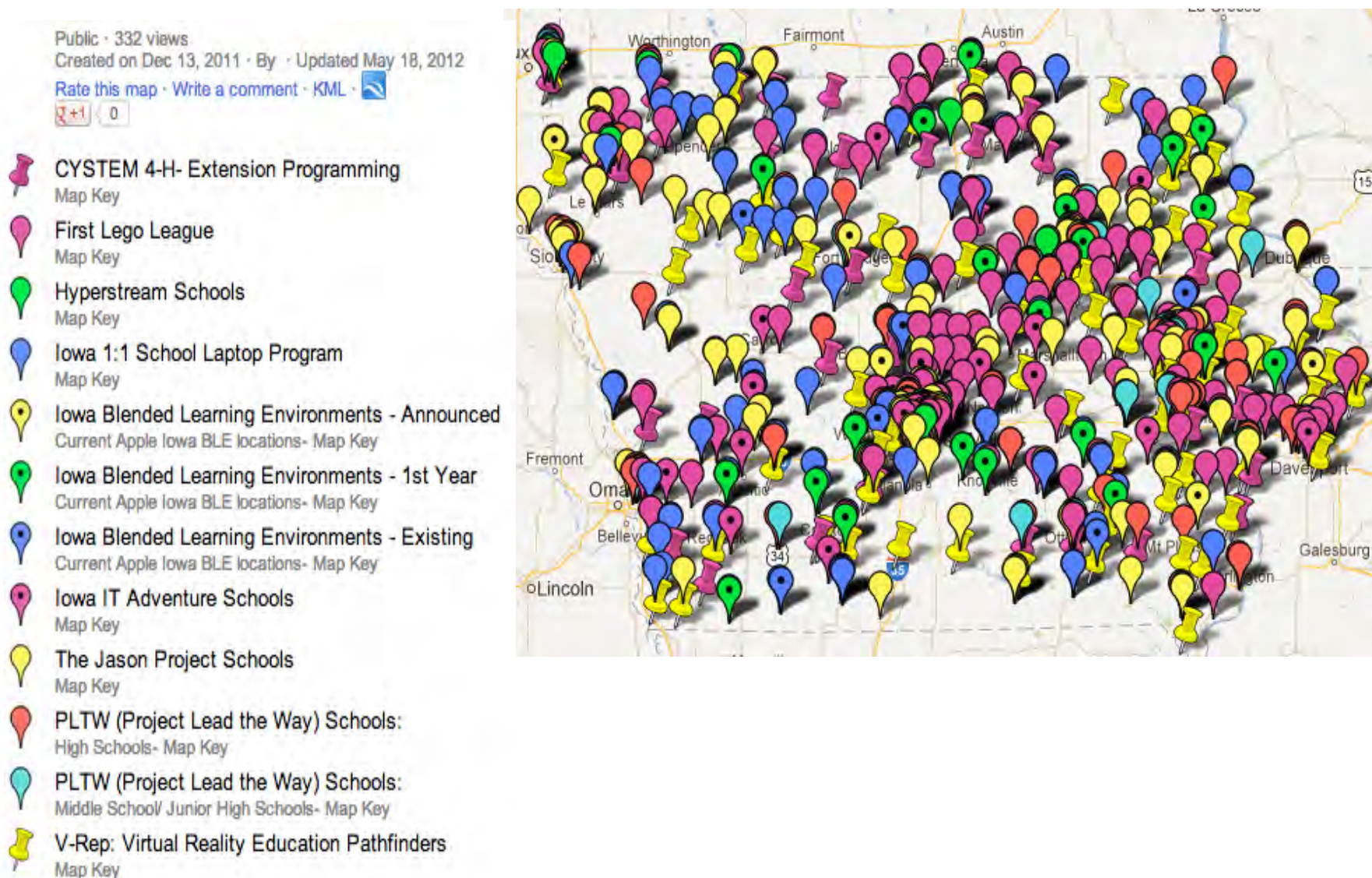
- 1 Northwest Hub - Iowa Lakes Community College
- 2 North Central Hub - Iowa State University
- 3 North Central Hub - University of Northern Iowa
- 4 Southwest Hub - Southwestern Community College
- 5 South Central Hub - Drake University
- 6 Southeast Hub - University of Iowa & Kirkwood Community College

### Representative Communities

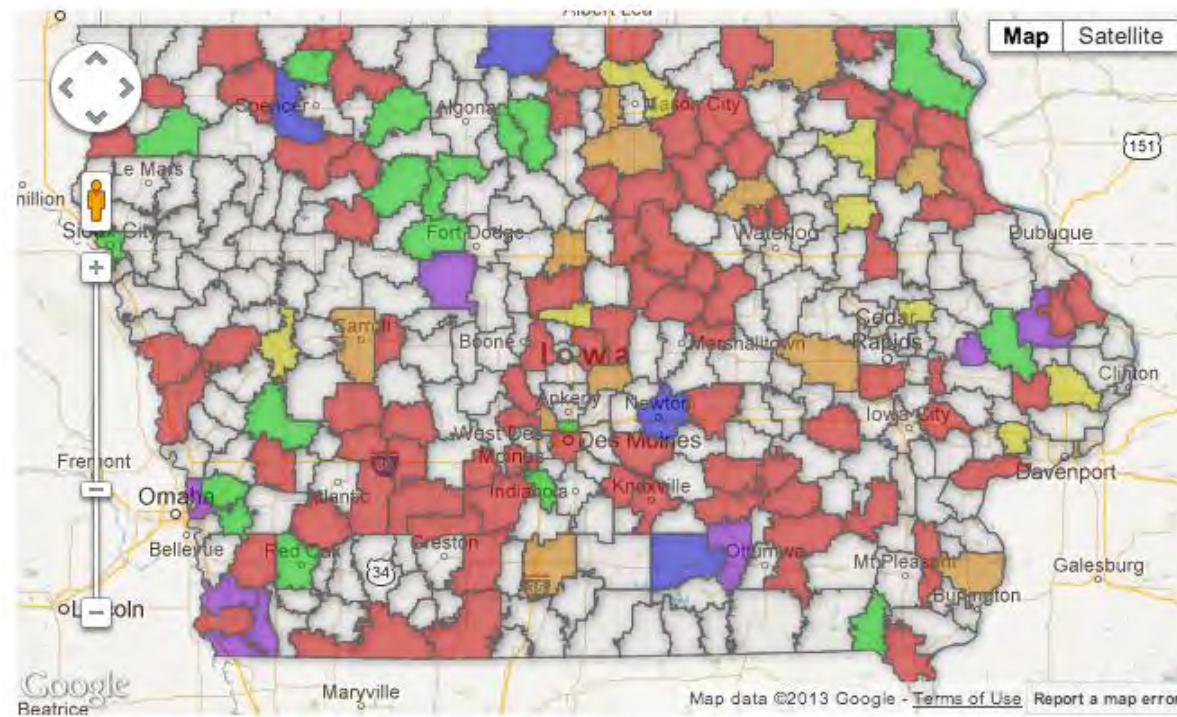
- |                |                 |                 |                   |                |                 |
|----------------|-----------------|-----------------|-------------------|----------------|-----------------|
| 1 Sioux City   | 11 Algona       | 21 Waverly      | 31 Council Bluffs | 40 Winterset   | 50 Washington   |
| 2 Sioux Center | 12 Humbolt      | 22 Independence | 32 Glenwood       | 41 Lamoni      | 51 Cedar Rapids |
| 3 Orange City  | 13 Fort Dodge   | 23 Oelwein      | 33 Harlan         | 42 Osceola     | 52 Iowa City    |
| 4 Spencer      | 14 Webster City | 24 West Union   | 34 Shenandoah     | 43 Indianola   | 53 Mt. Pleasant |
| 5 Holstein     | 15 Clarion      | 25 Decorah      | 35 Clarinda       | 44 Knoxville   | 54 Keokuk       |
| 6 Denison      | 16 Forest City  | 26 Manchester   | 36 Atlantic       | 45 Pella       | 55 Anamosa      |
| 7 Sibley       | 17 Iowa Falls   | 27 Marquette    | 37 Audubon        | 46 Centerville | 56 Burlington   |
| 8 Sheldon      | 18 Mason City   | 28 Cascade      | 38 Creston        | 47 Grinnell    | 57 Muscatine    |
| 9 Storm Lake   | 19 Marshalltown | 29 Maquoketa    | 39 Panora         | 48 Oskaloosa   | 58 Davenport    |
| 10 Carroll     | 20 Charles City | 30 Dubuque      |                   | 49 Ottumwa     | 59 Clinton      |



# IOWA STEM: ON THE MOVE!



# Iowa 1:1



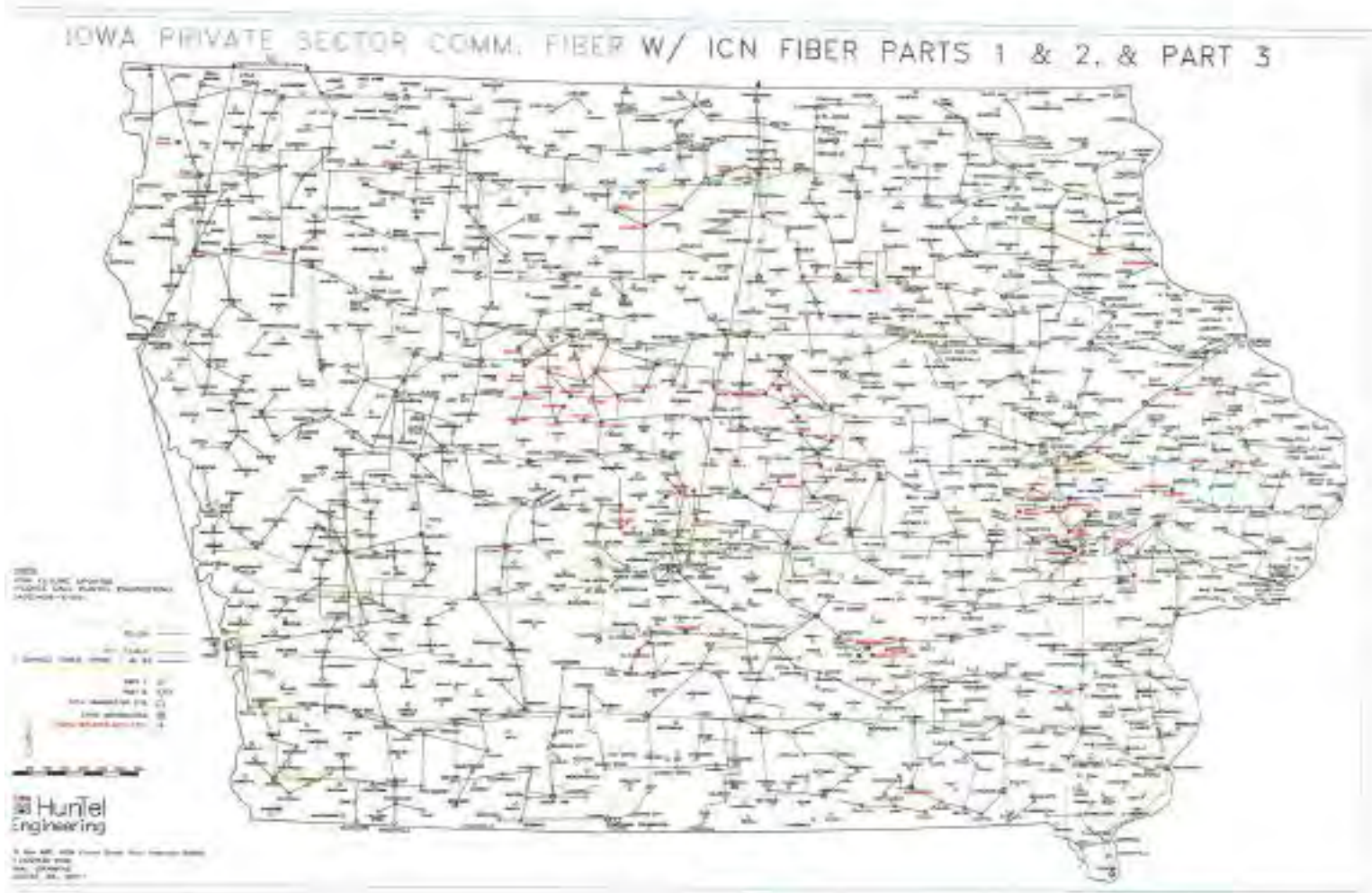
- Districts using Mac Laptops
- Districts using PC Laptops
- Districts using iPads
- Districts using Android or Windows tablets
- Districts using Chromebooks or Netbooks
- Districts that are using a combination of two different platforms

# Current Challenge:

- The “grassroots” state 1:1 initiative has focused on secondary schools (typically grades 7-12).
- The Iowa Communication Network (ICN) has run fiber into most secondary schools, state colleges and universities, and some state government facilities.
- Junior High and Elementary schools typically do not have access to ICN fiber and must look to other vendors (locally and regionally) to provide.
- Some 1:1 District are exceeding capacities of the ICN and are looking for alternative solutions. (Grinnell-Newburg: has gone from 100 to 200 meg. Howard-Winneshiek has gone from 60 to 100 meg.)
- Rural Iowa is at a distinct disadvantage with options for broadband.



# Fiber in Iowa





# Our Task:

- To identify Broadband resources in Iowa  
An Important Tool: [Connect Iowa](http://www.connectiowa.org)  
<http://www.connectiowa.org/interactive-map>
- Identify obstacles in providing dense, high speed, Broadband Internet statewide.
- To make recommendations on how to connect learners (students and teachers) via the Internet. The focus on, but not limited to: elementary and junior high students and their teachers in both rural and urban Iowa.
- 
- Identify and engage providers and policy makers in the creation of solutions

# School Internet Bandwidth Survey

Draft 3/1/2013

Larry Sigel, Partner  
Iowa School Finance Information  
Services



# Summary

- K-12 public school districts were surveyed February 19 – 28.
- Responses were received from 183 school districts (52.6% response rate).
- All ranges of enrollments and settings responded – from very small to very large.
- Survey responses summarized by whether all buildings share same level of internet bandwidth.

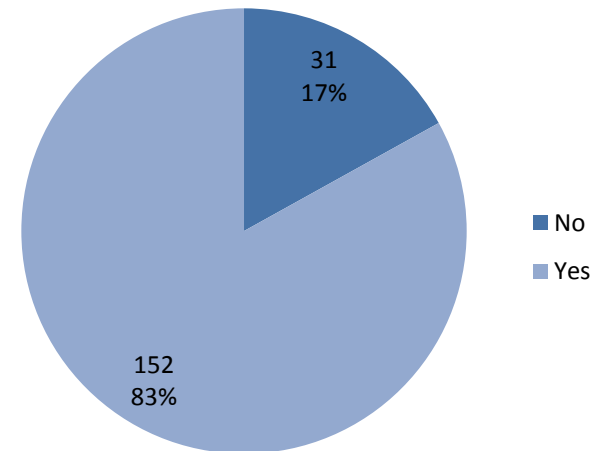
# Questions:

- Do all buildings share same level of internet bandwidth?
- What bandwidth is provided?
- Service provider?
- Cost per month?
- Level of satisfaction with provider?
- Level of satisfaction with cost?



## “Do all buildings in the district share the same level of internet access?”

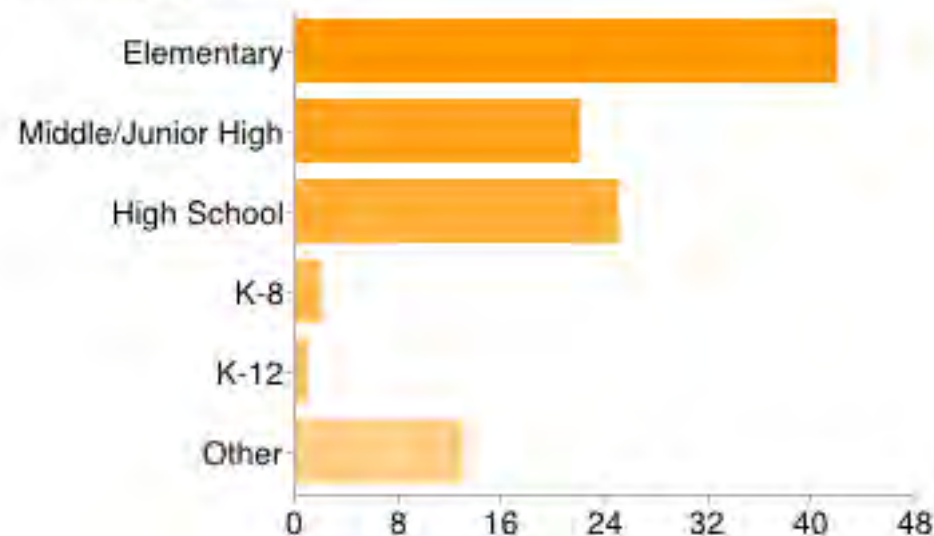
- 31 (16.9%) school districts reported having different levels of internet access among the buildings.
- 152 (83.1%) school districts reported having the same level of internet access among the buildings.



# Building Type

- A cross section of buildings represented:

**Building Type:**



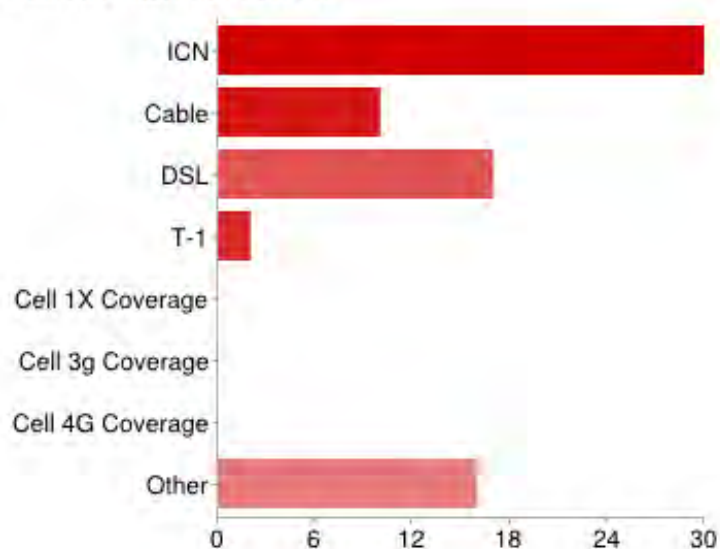
Elementary	42	40%
Middle/Junior High	22	21%
High School	25	24%
K-8	2	2%
K-12	1	1%
Other	13	12%

# Current Provider

- A majority of schools utilize the ICN for internet provision.
- Schools with different levels of internet bandwidth utilize cable and DSL where ICN is not available.

# Current Provider

Current Internet Provider

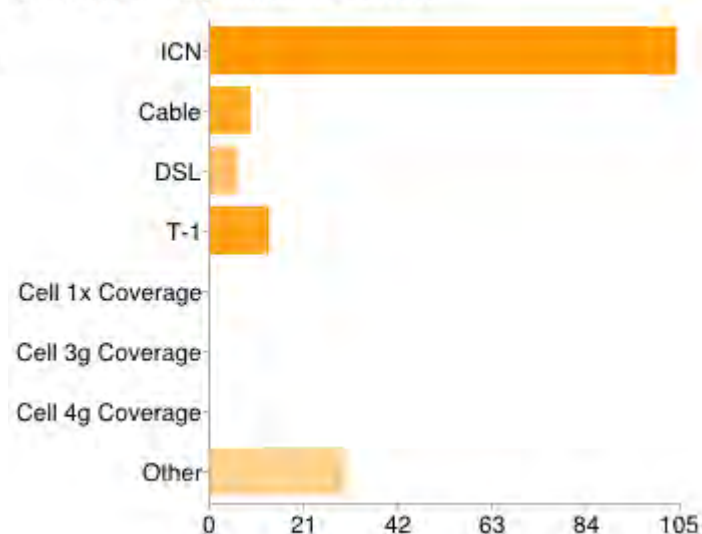


ICN	30	40%
Cable	10	13%
DSL	17	23%
T-1	2	3%
Cell 1X Coverage	0	0%
Cell 3g Coverage	0	0%
Cell 4G Coverage	0	0%
Other	16	21%

← District has dissimilar bandwidth

All buildings same service →

Current Primary Internet Provider



ICN	104	64%
Cable	9	6%
DSL	6	4%
T-1	13	8%
Cell 1x Coverage	0	0%
Cell 3g Coverage	0	0%
Cell 4g Coverage	0	0%
Other	30	19%



# Bandwidth Provided

District has dissimilar bandwidth



**Bandwidth Provided**

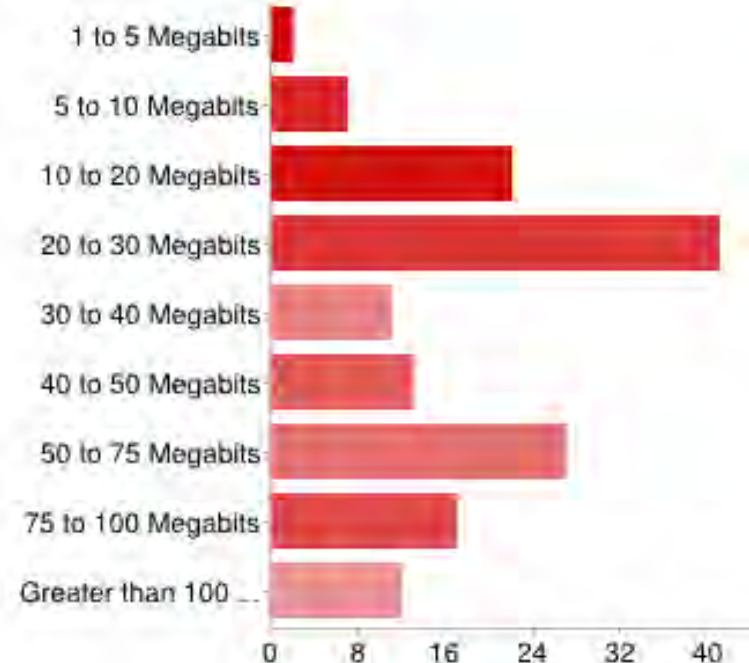


For those schools not connected to the ICN, less bandwidth is reported. Most report bandwidth in the 5 to 10 megabit range, roughly one-third of the speed reported by other districts.

All buildings same service



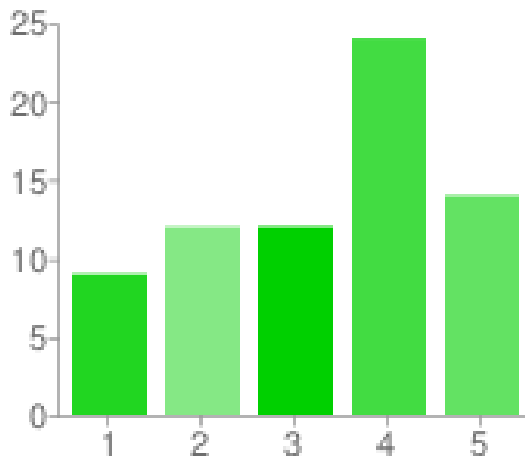
**Current Bandwidth Provided**



# Level of Satisfaction with Bandwidth

A majority of districts report being mostly satisfied with their level of satisfaction of current bandwidth, however 9 buildings report being completely dissatisfied with their bandwidth

**Level of Satisfaction with Current Bandwidth**

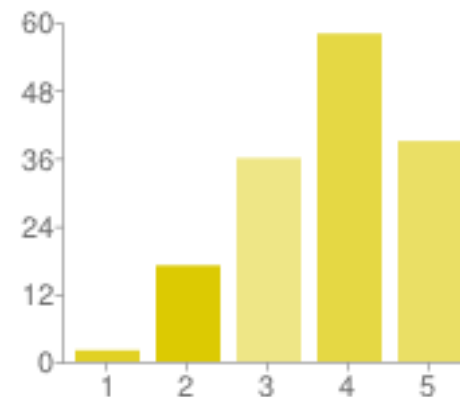


↑ District has dissimilar bandwidth

All buildings same service



**Level of Satisfaction with Current Bandwidth**



1 Completely Unsatisfied – 5 Completely Satisfied

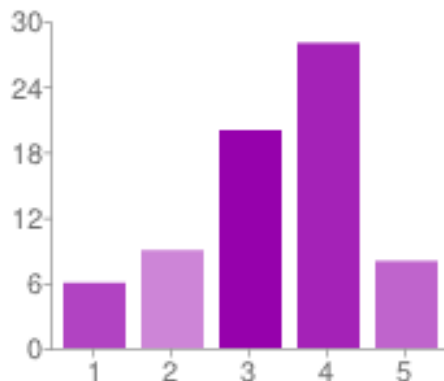
# Cost Satisfaction

A majority of districts report being mostly or completely satisfied with their level of cost satisfaction with their current provider, however fewer with lower bandwidth report being completely satisfied.

District has  
dissimilar  
bandwidth



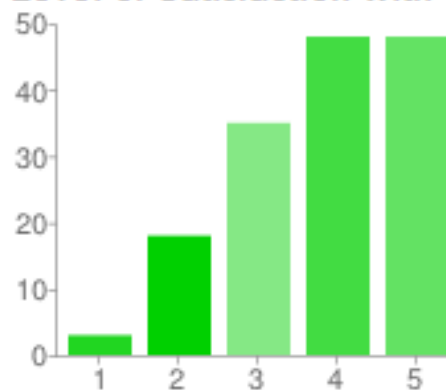
**Level of Satisfaction with COST of Current Bandwidth**



All buildings same  
service



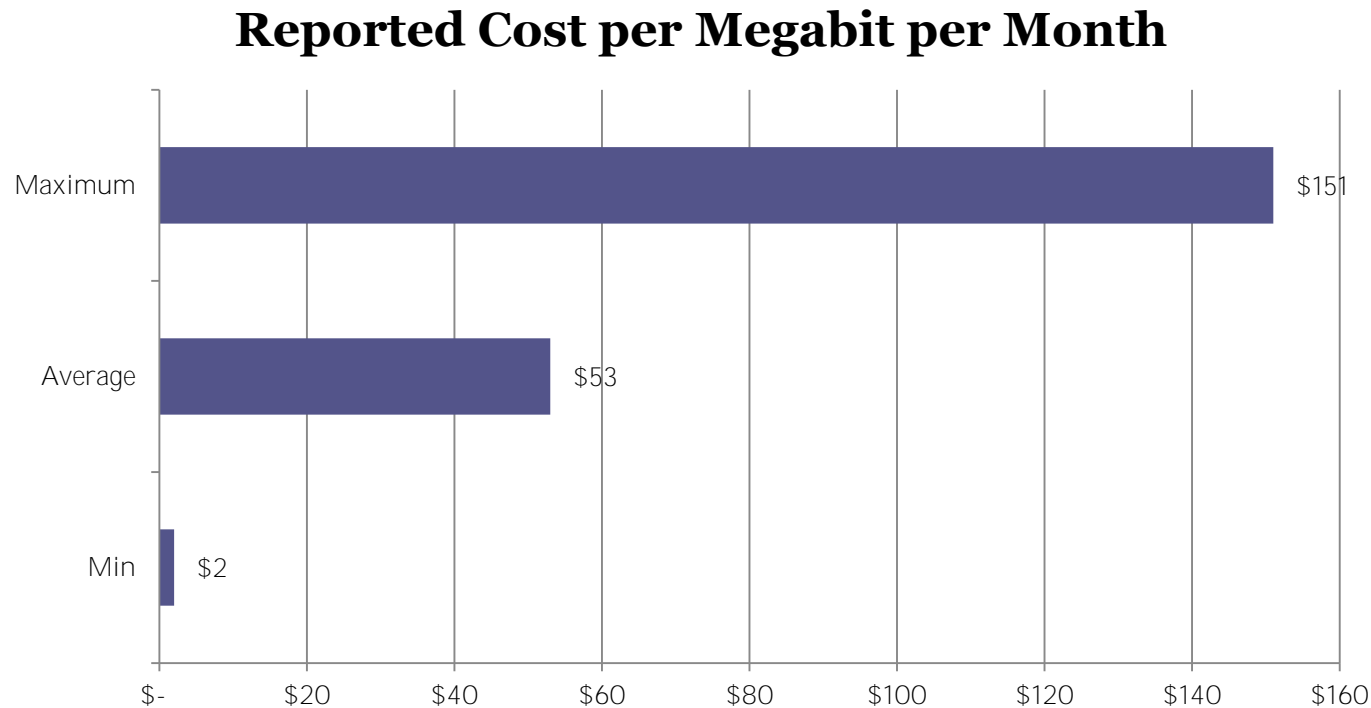
**Level of Satisfaction with COST of Current Bandwidth**



1 Completely Unsatisfied – 5 Completely Satisfied

# Cost

- When comparing relative cost, a cost per megabit per month was utilized. Costs vary widely around the state.





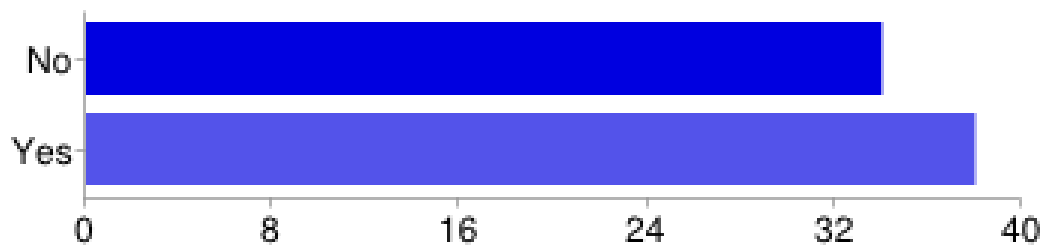
# More Bandwidth Needed?

Extrapolating the results statewide, approximately 80 to 90 districts need more bandwidth than their current provider is able to provide.

District has dissimilar bandwidth

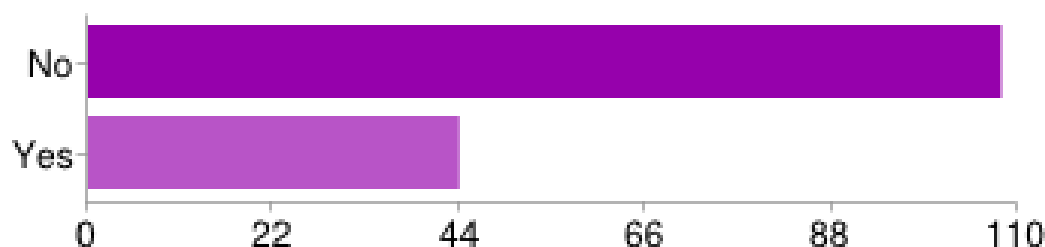


**Does the building need more bandwidth than your current provider provides?**



No	34	47%
Yes	38	53%

**Does the district need more bandwidth than your current provider provides?**



No	108	71%
Yes	44	29%



All buildings same service

# Summary / Reflections

- If the results of the survey are applicable on a statewide basis, a need exists for greater bandwidth in about one-third of Iowa school districts.
- School districts with different levels of internet service have lower bandwidth than districts with a single internet provider
- More schools are satisfied with their internet service if all schools share same level of internet service (usually ICN).

## Further Work

- Additional tabulations of cost of internet provision will be provided.
- Map of survey responses will be provided.

# Questions or Comments?

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